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December 2, 2008

James Frost, PE
Member, ACEC/Caltrans DES Liaison Committee
Simon Wong Engineering
9968 Hibert Street, Suite 202
San Diego, CA 92131

Dear Mr. Frost:

This letter is in response to your inquiry regarding the seismic design of utility openings for bridges, dated February 8, 2008. The California Department of Transportation (Caltrans) is currently considering revising its policies and procedures to provide guidance for determining the size and placement of utility openings in bridges with seat type abutments and hinges. Under the proposed procedures, utilities will be separated into two categories, high risk (failure of the utility could put the bridge at risk) and low risk facilities. High-risk utilities are those that carry volatile fluids and gases and pressurized waterlines twelve inches or greater in diameter.

High-risk utilities shall be designed for seismic displacements. The openings for high-risk utilities shall be of sufficient width to accommodate the anticipated Maximum Credible Earthquake transverse seismic movements plus three inches, in either direction, at the abutments and hinges. Subject to Caltrans' approval, hinges and abutments may be designed to limit transverse movements in order to reduce the size of the opening. For single span structures, Caltrans is considering developing guidance for estimating transverse movements.

The proposed policies would allow standard openings (Caltrans Standard Plans) to be used for low-risk facilities. Low risk utility openings should provide a two-inch minimum clearance between the utility or its casing pipe and the opening to allow for construction tolerances, small movements for service loads, and moderate seismic events.

In addition to the above requirements, utility openings must be designed in accordance with other Caltrans codes, standards and guidance materials. Codes and Standards from other governing agencies must be followed as well.

If you have any further questions feel free to contact Craig Whitten at (916) 227-8839.

Sincerely,

MICHAEL D. KEEVER

Office Chief
Office of Earthquake Engineering
Structure Design Services &
Earthquake Engineering
Division of Engineering Services

c: Craig Whitten, Senior Bridge Engineer, OEE
Earl Seaberg, Office Chief, OSFP